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SUICIDE BOMBERS, SOFT TARGETS AND APPROPRIATE COUNTERMEASURES

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Suicide bombings are receiving increased public attention now that they are taking place on an almost every other day basis against American and allied forces in the stability and support operation (SASO) environment of post-Operation Iraqi Freedom (OIF) Iraq. In November–December 2004 alone some 27 suicide bombings took place.[1]

This type of bombing is indicative of one of the changing dynamics of post-modern terrorism—terrorists purposefully engaging in suicide (martyrdom) in return for increased attack capability to support the greater vision of their cause. This form of individual and group sacrifice is analogous to the defense of a beehive undertaken by a swarm of liked-minded worker bees who can each deliver one sting before they die. In this case, however, the swarm is composed of a network of like-minded radical jihadi groups that compose al Qaeda.[2] Another swarm, based on emergent affinity Shia groups tied to Hezbollah or a central Asian "-Stan" entity, also has the potential to develop.

At some point in the future it is expected that suicide bombings will begin to strike the US homeland—at the very least on an irregular basis. The 9/11 bombings (using passenger airliners as the delivery mode and the aircraft's kinetic energy/fuel load as the warhead) represents the first of these suicide attacks.

With more, though probably less spectacular, attacks to follow, prudence suggests that we better understand suicide bombings at both the philosophical and the tactics and techniques levels. In addition, the relationship of suicide bombing to the soft targets within our society should be discussed and the appropriate countermeasures needed to respond to this threat identified. In doing this analysis, we must ask ourselves the question: Where do we draw the line when everything can't be protected 24/7?

Suicide bombers: Islamic tradition[3]

The Islamic martyrdom tradition is of specific interest because it is within this philosophical context that suicide bombings within Iraq and the United States have been and will be conducted. Raphael Israeli has written the best overview of suicide bombing's Islamic philosophical origins.[4] The conceptual basis is found with the legendary suffering and death of Hussein in Karbala in 680. This, along with the assassination of the son of Ali (first true Imam and successor of the Prophet), has had an extreme impact on the thinking of the Shia (Shi'ite) branch of Islam. The Shia cult of martyrdom is a tradition that originates with Hussein ibn Ali, grandson of the prophet Muhammad, who was killed by the army of Caliph Yazid at Karbala in 680. The idea of individual "selfless sacrifice" was then drawn upon during the Iran–Iraq War of the 1980s when units of Iranian children with the "keys of paradise" hanging on their necks cleared Iraqi minefields with their bodies. These Shia sacrifices were immortalized with the blood-red-colored water fountain of the martyrs in Tehran.

In 1982, the Iranian revolution under the Ayatollah Khomeini was then exported to Lebanon, where the "Islamic Resistance," the precursor of Hezbollah, launched a series of suicide attacks against US, French and Israeli targets. Thus, the creation of the Hezbollah (Party of God) in 1982 as a counter to the Israeli invasion provided the impetus for modern suicide operations. Hezbollah exploited the images of the cult of Hussein to inculcate self-sacrifice and "martyrdom" as an ideal for its fighters. This Shia group, which utilizes both terrorist and guerrilla techniques, conducted its first large suicide bombing in April 1983 against the US embassy in Beirut. That bombing was directly influenced by the first documented vehicular suicide bombing in December 1981 against the Iraqi embassy in Lebanon. The 1981 bombing was conducted by the Shia Amal group, which had cross-group linkages with Hezbollah upon the latter's formation.

Suicide bombings remained a Shia activity for a decade until Hamas (Islamic Resistance Movement), a Sunni terrorist group, conducted a suicide bombing within Israel in April 1993 against IDF soldiers. The reason for this transference from Shia to Sunni was based on two events. The first was the exile of over 400 Islamic activists, many of them Hamas members, by Israel to southern Lebanon in December 1992. Stranded and alone, these activists were befriended and protected by Hezbollah based on the simple rationale that "the enemy of my enemy is my friend." While in exile in Lebanon, the Hamas members were influenced by Hezbollah's suicide bombing CONOPS and brought these techniques back to the West Bank with them when they were repatriated. The second event was fundamentalist Sunni scholars who created fatwas (religious edicts) to rationalize how Shia concepts of "selfless sacrifice" could fit into Sunni thinking about martyrdom and ultimately the punishing of one's enemies. Suicide bombings spread to other fundamentalist

Sunni terrorist groups and then to more secular and nationalistic terrorist organizations such as the al-Aqsa Martyrs Brigades. The Brigades emerged in 2000 as an offshoot of Yasir Arafat's Fatah faction of the Palestinian Liberation Organization (PLO).

This migration of suicide bombings from the religious, initially with Shia groups and then to Sunni groups, and then to the secular, as with Arafat's Fatah, set the stage for Saddam Hussein's attempts in early to mid-2003 to draw upon this "criminal warfighting" technique against allied invasion forces in Operation Iraqi Freedom.[5] It also explains why suicide bombings have the potential to be conducted by any combination of former Iraqi Ba'ath party loyalists (to a limited extent) and fundamentalist Shia and Sunni terrorists now operating in Iraq.

From the perspective of individual and unit-level doctrinal employment, suicide bombers are advocated at both levels by radical Islamic elements. Suicide bombers look forward to death because, as martyrs (*shahid*), they expect to be rewarded by Allah in paradise while posthumously they and their families typically gain social status within their societies. Economic benefits, such as monetary payments, may also come to their family members as an additional bonus for the completion of a successful operation. For example, Saddam Hussein was noted for providing cash payments of $25,000 to the families of Palestinian insurgents killed in suicide attacks against Israeli targets during the Second Intifada.[6] Suicide operations range in organizational sophistication as well. For example, a single suicide bomber may act individually against a target, two or three may coordinate the bombings, or a larger number of suicide bombers may participate. This final scenario was seen with the 19 al Qaeda members who hijacked four US airliners on September 11, 2001, coordinating their activities as part of a larger strike force against multiple high-value targets.

Suicide bombers: tactics and techniques

Modern suicide bombings were first operationally employed in southern Lebanon by the terrorist Amal and Hezbollah groups in the early 1980s. This technique then spread to the Tamil Tigers in 1987 and to Hamas in 1993. Over the ensuing decade, an increasing number of terrorist groups engaged in suicide bombings: Palestinian Islamic Jihad in 1994, the Kurdistan Workers Party in 1996, al Qaeda in 1998, the Chechens in 2000, and the al-Aqsa Martyrs Brigades in 2002.[7] Since 1993, this pattern, with the exception of the Kurdistan Workers Party, is derived from radical Islamic groups netting together in a global insurgency against the United States and its allies.

Major groups engaging in suicide bombings can be analyzed by delivery modes (see Table 6.1) and target set (see Table 6.2). The Tamil Tigers and al Qaeda top the list in suicide bombing sophistication, followed by the Chechens and Hezbollah. Less sophisticated groups are Hamas, Palestinian

Table 6.1 Major groups by "suicide bomber" delivery mode

Group	*Personnel (human)*	*Vehicular*	*Aircraft*	*Vessel*
al-Aqsa Martyrs Brigades	Yes	Yes	No	No
al Qaeda	Yes	Yes	Yes	Yes
Chechens	Yes	Yes	No	No
Hamas	Yes	Yes	No	No
Hezbollah	Yes	Yes	No	No
Kurdistan Workers Party (PKK)	Yes	No	No	No
Palestine Islamic Jihad (PIJ)	Yes	Yes	No	Yes
Tamil Tigers (LTTE)	Yes	Yes	No	Yes

OSINT: Courtesy of Counter-OPFOR Program, NLECTC-West©2003, 2005.

Table 6.2 Major groups by "suicide bomber" target set

Group	*Civilian (personnel)*	*Military/LE (personnel)*	*VIP*	*Transit*	*Aircraft*	*Vessel*	*Buildings/ infrastructure*
al-Aqsa Martyrs Brigades	Yes	Yes	No	Yes	No	No	Yes
al Qaeda	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chechens	Yes	Yes	Yes	Yes	Yes	No	Yes
Hamas	Yes	Yes	No	Yes	No	No	Yes
Hezbollah	Yes	Yes	No	No	No	No	Yes
Kurdistan Workers Party (PKK)	Yes	Yes	Yes	No	No	No	Yes
Palestine Islamic Jihad (PIJ)	Yes	Yes	No	Yes	No	Yes	Yes
Tamil Tigers (LTTE)	Yes	Yes	Yes	Yes	Yes	Yes	Yes

OSINT: Courtesy of Counter-OPFOR Program, NLECTC-West©2003, 2005.

Islamic Jihad, and the al-Aqsa Martyrs Brigades—even though they have engaged in a greater number of suicide bombings than some of the other major groups. The Kurdistan Workers Party is at the bottom of the sophistication scale.

More sophisticated groups use larger and higher-order explosive devices. They engage in simultaneous (multiple suicide bombers/targets) and/or

sequential attacks (secondary and tertiary suicide bombers at the same target) and often combine the attack with other weaponry. They have the ability to engage "hard" rather than solely "soft" targets (partially as a result of larger bombs and better explosives), and can draw upon more delivery methods. Triggering methods (fuses, pull cords and cell phones) also increase with sophistication, as does the lessened detection of explosive device by sensors (X-rays, metal detectors, dogs and soldiers).[8]

Operational advantages of suicide bombings over normal terrorist bombings include:

- *The device is precisely delivered to the target.* The suicide bomber functions as a "precision weapon," taking the explosive device right to the target. This is a dimensional stand-off attack in the sense that the terrorist is "invisible" (stealth-masked) until the device is detonated, which helps overcome the Western advantage of stand-off targeting based on physical distance.
- *Harder targets can be attacked.* Targets which cannot normally be attacked can now be reached. Heavily fortified compounds with proper stand-off distances will not be damaged by normal terrorist bombings, whereas suicide bombers can crash through the front gate of a fortified compound and reach the desired target. Such gate-crashing has taken place repeatedly in vehicular suicide bombings.
- *The device has no window of vulnerability.* The explosive device cannot be found and moved or rendered safe. No time period exists from when the device is left at the target and the terrorist escapes to safety prior to detonation.
- *No plan required for egress.* The explosive charge simply has to be delivered to the target.
- *No one left alive to interrogate.* Because suicide bombers are not typically captured, operational security (OPSEC) of the terrorist group is better maintained. The Tamil Tigers use poison capsules as a fail-safe method in this regard. Some of the Palestinian groups use a redundant, cell phone-activated detonator which can be set off by calling the cell phone in case the bomber attempts to back out of his or her mission.
- *No burden of wounded comrades.* Injured comrades create a logistical strain on a group.
- *Psychological factor.* Suicide bombers are blown to pieces, with the head (in the case of wearing a bomb vest) typically being separated from the body. Individuals also become concerned about other people close to them where suicide bombings take place with some frequency. This can create higher levels of anxiety for US troops when dealing with locals. Everyone in a crowd now has to be scanned for bulky clothing and unusual behavior.
- *Blood-borne pathogens delivery.* Suicide bombers infected with hepatitis and HIV can potentially create a "hazmat" incident by spreading disease to targeted personnel. Bone fragments and blood-covered bolts/nails may directly transmit pathogens from the bomber to nearby victims. While this is less commonly used and of questionable utility, infected bombers have been utilized by some Palestinian terrorist groups.

A strategic consideration must also be mentioned. Suicide bombings create martyrs for the group and the society it attempts to draw upon for recruitment. As more and more suicide bombers kill themselves and gain prestige and heavenly rewards (in the eyes of their society), the cycle of violence can continue to escalate. This can create a "religious movement" within the faithful. Already, Palestinian society is taking on characteristics of a death cult, with young children preferring to grow up to be suicide bombers rather than engineers and doctors. Recruitment of new suicide bombers is no longer difficult as the movement grows.

This should give us pause for concern and reflection, because radical Islamic networks, which include al Qaeda, are engaging in a global insurgency against the West. Martyrdom is one of the common bonds that hold this insurgency together, and it is increasing in strength as more terrorist groups engage in suicide bombings. The Roman Empire faced a similar strategic dilemma with Christian martyrs. We need to break the radical Islamic link to martyrdom, now over 20 years long, before it becomes too fully entrenched. Failure to do so has the potential to create a strategic dilemma for the United States.

Soft target environment

The United States is a stable and safe democratic state and, as a result, is full of "soft"—as opposed to "hard"—targets. Soft targets lack proper stand-off distances, access denial and/or blast protection that hard targets possess. The United States is now vulnerable because of a battlespace shift occurring in war and conflict. Older forms of homeland defense based upon conventional armies, air forces and navies (fourth-dimensional forces) are no longer able to protect us. The reason we are now defenseless is because these legacy forces are not able to stop the penetration of our country's borders from "stealth-masked" terrorist assault teams (fifth-dimensional forces).

Soft targets that can be attacked by jihadi suicide bombers range from low to high value. No hard-and-fast rule exists on how to determine whether one target is of greater or lesser value than another one. Typically low-value targets include individual and multi-tenant residences, small businesses and random groupings of individuals. Medium-value targets include schools, apartments, office buildings, hospitals, passenger ships and aircraft, and local and state government buildings.

High-value targets have a greater value placed on them than low- and

medium-value targets because they are special for some reason. This is the case because they can be defined by one or more of the following attributes: they contain large numbers of people (e.g. a major sports arena), hold a high symbolic value to society (e.g. the Statue of Liberty) or are critical to the operating of the economy (e.g. Wall Street) or government (i.e. Congress or the President), or their destruction would result in catastrophic effects (e.g. a nuclear power plant or major dam).

These soft targets represent almost all of the public and private structures and infrastructure of the country and its entire populace, i.e. everything is basically the target of a potential suicide bomber and is threatened 24/7. Protecting everything is politically and economically impossible, even more so given the fact that our enemies currently possess a military (e.g. battlespace) advantage over us.

Taking this as a given, the question can then be asked: Where do we draw the defensive line? To answer this question, however, we need to better understand the targeting effects of suicide bombing (i.e. terrorism).

Targeting effects come in two forms. Conventional military force is based on thing targeting. This form of targeting relies upon fires and maneuver—things are destroyed (killed), damaged (injured) or seized (taken prisoner). Traditional "destructive firepower" based upon firearms, artillery, rockets/missiles and bombs falls squarely within this category. This is a form of targeting, and warfare, that the United States and its allies dominate.

Unconventional military force is based upon bond-relationship targeting (BRT). This form of targeting relies upon "disruptive firepower" that attacks the linkages between things. Terrorists rely upon this form of targeting because it is an asymmetric response to US (and other nation-state) domination of conventional military force. Rather than focusing on the point-of-impact concerns indicative of destructive targeting, this form of targeting focuses upon the shock waves generated by the targeting event. To use the pebble in the pond metaphor, it is the ever increasing shock waves generated by the impact of the pebble, rather than the impact of the pebble into the water itself, that is of significance to this form of targeting.

The effects of bond-relationship targeting can be better understood by viewing Table 6.3. Each year the United States loses about 2.4 million people to old age, disease, accidents, etc. This represents the annual fatalities of citizens in the society and is accepted as part of the human condition. The 9/11 suicide bombings resulted in about 2,800 deaths—0.00117 percent of the annual fatalities—a loss that, while tragic, is meaningless to the health and welfare of the society.[9] From a military firepower perspective, the 9/11 losses are also meaningless; losses of tens and even hundreds of thousands of individuals (remember the Somme?) are common in conventional nineteenth- and twentieth-century battles.

So then, why did 2,800 fatalities result in such widespread panic and societal disruption? While far more accidents, suicides and homicides take place

Table 6.3 Peacetime and suicide bombing fatalities

Fatalities	*Number*
Peacetime examples:	
Total US deaths (2001)	2,416,425
Accidents	85,964
Suicides	27,710
Homicides	11,328
Suicide bombing examples:	
September 11, 2001 attacks	*c.* 2,800
Operational Iraqi Freedom (first year)	813

Sources: U.S. National Vital Statistics, vol. 52, no. 9. Nov. 7, 2003; and Robert J. Bunker and John P. Sullivan, *Suicide Bombings in Operation Iraqi Freedom*, Land Warfare Paper 46W, Sept. (Arlington, VA: Institute of Land Warfare, Association of the United States Army, 2004), pp. 3–7.

in the United States each year than the 9/11 fatalities, they are spread out in time and space and occur individually and in small clusters and thus the effect is not the same. The second plane crashing into a World Trade Tower and the implosion of the Towers were viewed collectively by most of the US population. This allowed for the psychological shock waves generated by the incident—which are far more dangerous than the actual death and destruction created—to be effectively transmitted to the populace. As a result, the bonds that held society together were directly assaulted and frayed to an extent by the incident.

This brings us back once again to the question of drawing a defensive line. Such a line is not fatality-based—though fatalities may be a component in our considerations. Surely if 9/11 had resulted in 28 (1 percent) or even 280 (10 percent) fatalities the societal disruption generated by watching the incident unfold would not have been as great. Hence 9/11 represented a rock thrown into a pond, rather than a pebble, and rocks generate greater shock waves than smaller stones.

First and foremost, then, the defensive line against suicide bombers needs to be drawn at the disruptive firepower level. The effects of bond-relationship targeting need to be mitigated so that society does not suffer from the shock waves generated. Since shock waves are generated by more significant suicide bombing events rather than less significant ones, higher-value targets within society, especially ones with great symbolic value, should be protected first.

The problem that we face, however, is that any new suicide bombing or multiple suicide bombings that take place in America will be an immense disruptive firepower event. One plausible scenario is three or four indoor shopping malls being targeted by Iraqi insurgents who have infiltrated into the country in order to bring the war home to America.[10] Given that only 813 people were killed during the first year of all the suicide bombings in

Operation Iraqi Freedom, at best such a conventional domestic attack might yield 100 to 200 fatalities. After this event or events, the disruptive nature of future attacks should lessen—in contrast to the other view that American society could begin to turn in upon itself after successive waves of attacks. What mitigates the second view is the inability of OPFORs to sustain a suicide bombing campaign in our country; logistical and organizational restraints would be an inhibiting factor in such a terrorist campaign.

Appropriate countermeasures

At a minimum, the countermeasures needed are to defend against disruptive firepower (BRT) against society at the strategic level and to protect high-value targets to limit the BRT potentials generated. However, since we are probably looking at decades of war with jihadi insurgents, the public will not tolerate being undefended over the long term against the threat of suicide bombings within the country, even if the rates of fatality potential are well below the yearly national levels of suicides and homicide. As a result, a much broader suicide bombing countermeasures program will be required.[11] The outline of such a full-fledged program is presented in Table 6.4. Its evolution should be dependent on our perceptions of the intent and capability level of terrorist groups seeking to engage in suicide bombings and the resources that we are willing to spend to respond to the threats identified.

Greater dividends always result from proactive measures and programs at the strategic rather than the tactical and operational level. It is better to deter a suicide bombing or better yet shape an OPFOR (opposing force) in such a way that it will renounce martyrdom operations (such as suicide bombings) as one of its TTPs. Once we are forced to actually respond to an incident or, worse yet, deal with its consequences, we have gone from being proactive to being reactive. From a countermeasures perspective it is far smarter to retain the initiative and make an OPFOR contend with our actions rather than the other way around.

Full-fledged suicide bomber countermeasures would be broken up into four phases, with the first two ongoing and the second two incident-triggered. Ongoing programs focus on monitoring, analysis and coordination, and proactive measures. Tables 6.1 and 6.2 showing group delivery modes and target sets for suicide bombings are basic examples of intelligence collection and threat analysis—know thy enemy. Interagency networks, from the operational through the global level, would be based on the Los Angeles Terrorism Early Warning group model of intelligence fusion and network response capability. Incident-based programs focus on incident response and consequence management.

Each phase of the program could be broken down and discussed further, but such detail is not appropriate for this venue nor required to make the point that a very sophisticated countermeasures program can be created.

Table 6.4 Suicide bomber countermeasures program

	Tactical and operational	*Strategic*
Monitoring, analysis and coordination (ongoing)	Intelligence collection. Threat analysis. Interagency networks (operational area).	Intelligence collection. Threat analysis. Interagency networks (regional to global).
Proactive measures (ongoing)	Preemption capability/ hunter-capture teams (MIL—uniformed and plain-clothed). Facility design. Awareness training (responders and civilians). IPO: playbooks and target folders. RAM and playbook security measures (PSM). Electronic warfare. Information operations. Specialized equipment and training (LE/responders).	Redefine international and national law. OPFOR deterrence. BRT vs. OPFORs. BRT vs. martyrdom. Operations (religious). HUMINT/ group penetration and informers. ELINT/ group monitoring. Early warning notification system (cell/ pager).
Incident response (incident-based)	Force protection/ secondary devices. Bomb squads. SWAT teams. HAZMAT teams. Counter-surveillance teams.	Incident notification system (cell/ pager)
Consequence management (incident-based)	Medical treatment. Fire suppression and victim extraction. Hazmat clean-up/ decon post-blast forensics. Criminal investigation. Media liaison. Insurance claims. Restoration of services.	Societal disruption limitation (BR protection). TTP notification system (cell/ pager).

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What is important is the question of the extent to which we actually implement such a program. This should be determined by the threats identified and our willingness to allocate resources against them in a proactive and rational manner. Unfortunately, what happens all too often is a reactive response made after a terrorist event or events have transpired. Given this perspective, we can expect that singular or multiple suicide bombings will

have to take place domestically before we will know where the defensive line will be actually drawn.

Notes

This chapter was originally presented as a paper at the Law Enforcement—Intelligence Interactions: Problems and Opportunities Panel, Intelligence Studies Section, 46th International Studies Association Conference, Honolulu, Hawaii, March 3, 2005.

1 This does not include four unverified martyrdom operation claims made by the "Military Wing of Al-Qaiida's Jihad Committee in Mesopotamia." OSINT is derived from Reuters, CNN, BBC, AP and other news sources.
2 To better understand the new capabilities such groups possess, see Robert J. Bunker and Matt Begert, "Operational Combat Analysis of the Al Qaeda Network," *Low Intensity Conflict and Law Enforcement*, ed. Robert J. Bunker, Special issue "Networks, Terrorism and Global Insurgency," vol. 11, no. 2/3, Winter 2002 (published in Sept. 2004), pp. 316–39.
3 The suicide bombers sections are drawn from Robert J. Bunker and John P. Sullivan, *Suicide Bombings in Operation Iraqi Freedom*, Land Warfare Paper 46W, Sept. (Arlington, VA: Institute of Land Warfare, Association of the United States Army, 2004), pp. 3–7. The tables have been updated with more recent suicide bombing information.
4 Raphael Israeli, "A Manual of Islamic Fundamentalist Terrorism," *Terrorism and Political Violence*, vol. 14, no. 3, Winter 2002, pp. 23–40.
5 While suicide bombings spread to the secular socialist Kurdistan Workers Party years prior to Fatah's al-Aqsa Martyrs Brigades, it was probably too early to directly influence Iraqi thinking.
6 See "Iraq Continues Paying Palestinian Suicide Bombers' Families," *Iraqi Kurdistan Dispatch*, June 20, 2002, found at http://www.ikurd.info/news-20jun-p2.htm, and "Saddam Stokes War with Suicide Bomber Cash," *Sydney Morning Herald*, Mar. 26, 2002, found at http://www.smh.com.au/articles/2002/03/25/10174766310.html
7 These initial incident dates are drawn from open-source information (OSINT).
8 More specific information on tactics and techniques is outside the scope and venue of this work. Open-source documents that can be referenced are: International Institute for Counter-Terrorism at the Interdisciplinary Center, Herzliya, *Countering Suicide Terrorism*, Anti-Defamation League of B'nai, 2002; Human Rights Watch, *Erased in a Moment: Suicide Bombing Attacks against Israeli Civilians*, New York, 2002, access via www.hrw.org/reports/2002/isrl-pa/. US military and law enforcement should see the unclassified but restricted TSWG, *Suicide Bombing in World Terrorism*, June 26, 2003.
9 For more on misperceptions, see Clark R. Chapman and Alan W. Harris, "A Skeptical Look at September 11th: How We Can Defeat Terrorism by Reacting to It More Rationally," *Skeptical Inquirer*, Sept.–Oct. 2002, www.csicop.org
10 Ned Parker, "Iraqi Insurgents Threaten Attack inside the United States," Agence France Presse, Jan. 4, 2005.
11 Such a program is not stand-alone but would be integrated with other counter-terrorism programs dealing with other forms of threat weaponry and tactics, techniques and procedures (TTPs). Also, while conventional suicide terrorism currently generates only low levels of fatalities, CBRN (chemical biological radiological nuclear) terrorism (the E—explosive—purposefully excluded) has much greater fatality potentials.

7

TERRORIST USE OF NEW TECHNOLOGIES

Abraham R. Wagner

Introduction

While the religious and philosophic underpinnings of the current terrorist movements may be rooted in the Middle Ages, the various technologies that they employ certainly are not. Indeed, terrorist organizations operating in the Middle East, Asia and elsewhere have embraced a range of modern technologies to support their operations in areas including communications, targeting and recruitment, as well as in the design and use of weapons against military and civilian targets. At the same time, the intelligence services, military and law enforcement agencies engaged in counter-terrorism are operating in an era where a host of new technologies exist, and continue to evolve, that are of potential use in combating terrorism.

Technology has served as an "enabler" on both sides of the terrorism problem, in terms of making actual operations more difficult or the legal impediments presented by new technologies. While the term technology covers a very broad range indeed, and even the various technologies employed by terrorists and those engaged in counter-terrorism are also quite wide, the focus here is on four critical areas, including communications and IT, weapons and countermeasures, biological attack, and non-intrusive inspection.

Communications and information technology

What began as an MIT dissertation in 1962, and a DoD experiment after that, has evolved into a technological revolution, now known as "cyberspace" and the internet, that goes far beyond communications. Indeed, it is likely the most significant advance in media since printing and Gutenberg's invention of movable type in the sixteenth century. Internet use has exploded from a few scientists to a world where "net" access is almost universal, and terrorists are no exception; they have all become increasing users of the internet for a variety of functions. Where in earlier times they relied on other technologies such as telephone, radio, the mails and other systems,